MITEL

Communications Director Platform

SITE PLANNING GUIDE
MITEL COMMUNICATIONS DIRECTOR RELEASE 6.0

MITEL

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Site Planning Guide
Mitel Communications Director Release 6.0
Rev. A

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Introduction

Purpose of This Guide

This guide helps you plan new 3300 IP Communication Platform sites. Use the tables in this guide to

- collect site information

- identify site requirements

- determine system engineering requirements

- record licensing requirements

- record versions of existing system and application software.

Who This Guide is Written For

This guide is for 3300 ICP certified technicians and sales engineers.

Finding Product Information

This guide refers you to other Mitel customer documentation for information and detailed procedures.

Access eDocs for the Latest Documentation

The Mitel Customer Documentation (eDocs) site on Mitel OnLine provides the latest customer documentation. The documentation for the current and previous product release are available from the main page. The documentation for other past releases is available from the Documentation Library link.

To view the available documentation, you require

- Internet access (high-speed is recommended)

- Internet Explorer 5.5 or later

- Adobe® Acrobat® Reader 4.0 or later

- Microsoft® Word 97 or later

- your Mitel OnLine user name and password (required to access technical documentation; user documentation is not password protected)

To access a technical document

1. Log into Mitel OnLine.

2. From Mitel OnLine, click **Products**.

3. Click **Product Documentation**.

4. Bookmark this URL.

5. In the left frame, select the product.

6. In the right frame, click the document.

7. To access a generic user guide or quick reference card, click **User Guides**, click the desired language at the top of the frame, and then click the desired guide or quick reference card.

Downloading Generic User Guides

You can download telephone user guides and quick reference cards in .pdf format from the eDocs site and then print copies for your customers. User guides and quick reference cards are available in multiple languages.

The procedures described in the generic user guides use the system default feature access codes.

Finding Out What's New

A "What's New in This Release" topic in the 3300 ICP System Administration Tool online help describes the new functionality and documentation improvements that have been added in the latest product release. The topic provides a brief description of the new functionality and links to the details. This topic is displayed when you launch the System Administration Tool online help.

Checking the Knowledge Base

The Knowledge Base is your source for product information. It covers a wide range of technical support procedures. All new Technical Bulletins (TBs), Release Notes (RNs), How to Guides, and Troubleshooting guides are posted in the Knowledge Base.

To access the Knowledge Base:

1. Log into Mitel OnLine.

2. From Mitel OnLine, click **Technical** and then click **Knowledge Base**.

3. Select the product name (for example, 3300 IP Communications Platform).

4. Select the type of article you are looking for or choose **All**.

5. Click **Search**.

Site Information

Table 1. Collecting Site Information

Step	Details
1. List site information	
Company name	
Address	
State/Province/Country	
ZIP/Postal Code	
Time zone	
List contact information	
Contact name	
Telephone	
Cell phone	
Email address	
2. List Authorized Partner information	
VAR/Partner name	
Address	
City	
State/Prov	
ZIP/Postal Code	
State Prov	
Country	
Time Zone	
3. Identify technical staff (that manages above site)	
Technician's name	Current 3300 ICP certification level
-	
-	
-	

Step	Details
-	
4. **Complete pre-installation VoIP Site Survey**	
5. **Complete data network assessment**	
6. **Obtain customer site floor plan**	
Site plan should identify:	Site locations Trunk requirements Numbering plans Building layout Existing PBXs Existing cable runs Equipment rooms LAN information
7. **Obtain information on site power distribution, backup power, and the physical distribution.**	
8. **TDM services such as fax and modems. Modems do not function across IP trunks and fax works under limited settings. A T.38 gateway is recommended if fax is required.** - Physical and logical distribution of phones - Emergency support (for example, 911, 999, or 112) - PSTN trunk connections, gateway requirements, compression, IP networking - Location of applications - voice mail, auto attendant, and so forth - TDM services such as fax and modems. Modems do not function across IP trunks and fax works under limited settings. A T.38 gateway is recommended if fax is required.	
9. **Obtain IP addresses for controllers and IP phones.** 📝 **Note:** The controller reserves some IP Addresses for internal use. Network devices must not use these reserved IP addresses or there will be IP address conflicts. Refer to the Engineering Guidelines for IP Address restrictions.	
10. **Obtain and review Layer 2 switch settings with customer.**	
11. **Consider the requirements for spare hardware, response time, and available resources in the event of a failure. Is resiliency or network redundancy required?**	
12. **Consider requirements for future growth. Does the solution need to simply meet current requirements or should it accommodate future growth requirements? Consider network devices, telecom devices, and cabling.** 📝 **Note:** If a resilient network configuration is employed, smaller 3300 ICPs may not have multiple LAN connections. If multiple LAN connections are required, you must enable Spanning Tree protocol on the controller.	

Site Requirements

Table 2. Identifying Telephony Requirements

Step	Telephone Requirement	Number	Reference
1. Record number:	IP phone users		None
	SIP users		
	DNIC phone users		
	Analog phone users		
	Console users		
	Hot desk users		
	External hot desk users		
	Voice mail users		
	Teleworkers		
	Unified Communicator Mobile Extension users		
	Audio and Web Conferencing (AWC) users		
	Wireless handset users (Spectralink)		
	Wireless handset users (IP DECT)		
	ACD Agents (Hot Desk)		
	ACD agents (Standard)		
2. Identify required trunk interfaces	IP Trunking		
	XNET		
	PRI (# of links)		
	T1/D4 (# of links)		
	T1 MSDN/DPNSS (# of trunks)		
	LS (# of trunks)		
	LS Class (# of trunks)		
	BRI (# of links)		
	Other Interfaces:		
3. Define digital trunk protocols	T1 MSDN/DPNSS		
	DMS -100		
	DMS -250		
	4ESS		
	NI-2		
	QSIG		
	ETSI or ISO		
	EURO ISDN or R2		
	Other Protocols:		
4. Record type and number of trunks	DS1 Links (14 Channels/Link T1)		Refer to the System
	E1 Links (30 Channels/Link)		

Step	Telephone Requirement	Number	Reference
	R2 Links (30 Channels/Link)		Administration Tool help for programming details.
	PRI Links (23 Channels/Link)		
	BRI Links		
	Analog CO		
	LS Class		
	E&M		
	DID		
	ISDN		
	SIP Trunks/SIP Line Side		
	Other Trunks:		

Table 3. Identifying Hardware Requirements

Hardware Components	Device, Feature, or Functionality	Number	Reference
Controllers/Server Platforms	CX		See Engineering Guidelines for configuration tables. Refer to Hardware Technical Reference Manual for controller descriptions
	CXi		
	MX		
	MXe Standard		
	MXe Expanded		
	MXe Server		
	Redundant MXe (add RAID controller, hard disk, and a second AC PSU)		
	AX		
	3300 MXe with APC (an MXe controller with an APC card that supports the Mitel Applications Suite software)		See Mitel Application Suite Installation and Maintenance Guide
	Mitel Communications Director for Industry Standard Servers (MCD-ISS)		See the Engineering Guidelines for these products for platform descriptions and configuration information.
	Virtual Mitel Communications Director (vMCD)		
	Multi-Instance Communications Director		

Controller modules • With pre- 3300 Release 7.0 software, the T1/E1 Combo Card is only supported in CX/CXi systems. With Release 7.0 software or later, the T1/E1 Combo Card is supported in CX, CXi, MX, MXe, and LX systems.	Digital Signal Processor II (DSP II Module)		Refer to Hardware Technical Reference Manual for descriptions
	Digital Signal Processor - Dual		
	Digital Signal Processor - Quad		
	Echo Canceller		
	Dual FIM Module		
	Dual T1/E1 Framer Module (MX/LX)		
	T1/E1 Combo Card		
	T1/E1 Resilient Combo Card		
	Quad Basic Rate Interface (BRI) Framer		
	Quad CIMM		
Option boards • Option boards provide embedded analog capability directly on the MX/MXe and CX/CXi controllers.	Analog Main Board (Version III with protected ONS ports)		
	Analog Main Board		
	Analog Options Module		
Application Processor Card • Provides Mitel Standard Linux (MSL) for the support of Teleworker and Unified Communicator Mobile Extension applications on the CX(i) and MXe controllers	APC-CX(i) APC-MXe		
Network Service Units (provide external TDM interfaces) Analog Service Units (provide external analog interfaces) Analog Service Unit II (provides external analog interfaces; supports Class Trunks and can provide CLID for Loop Trunks to an existing LX controller)	Universal T1/E1NSU		
	R2 NSU		
	Basic Rate Interface (BRI)		
	Universal Analog Service Unit		
	Analog Service Unit - 24 port		
	Analog Service Unit II		
AX Controller and ASU II Cards	4 + 12 Port Combo Card		
	16 Port ONSP Card		
	24 Port ONSP Card		
Peripheral Cabinets and Cards	Peripheral Cabinets		Refer to Hardware Technical Reference Manual for descriptions.
	SX-200 Bays with BCC III cards (Migration path only)		
	DNI line card		
	LS/GS trunk card		
	ONS CLASS/CLIP line card		
	ONS line card		

	E&M tie trunk card	
	OPS line card	
	DID/Loop tie trunk card	
	SUPERSET hub	
Digital Service Units and Cards	Digital Service Units	
	CEPT Formatter Card	
	DS1/T1 Formatter II Card	
	T1/E1 (DS1) Formatter Card	
	Basic Rate Interface Card	
	Primary Rate Interface Card	

Table 4. Identifying Peripheral Requirements

Peripheral Devices	Device, Feature, or Functionality	Number	Reference
IP Phones **Note:** The Mitel Communications Director (MXe Server) does not support the 5140 IP Phone, 5240 IP Phone, or the 5230 IP Appliance	5201 IP Phone		Refer to General Information Guide for descriptions.
	5212 Dual Mode IP Phone		
	5224 Dual Mode IP Phone		
	5302 IP Phone		
	5304 IP Phone		
	5312 IP Phone		
	5320 IP Phone		
	5324 IP Phone		
	5330 IP Phone		
	5340 IP Phone		
	5360 IP Phone		
	Navigator		
	Telematrix 3000 IP		
	5560 IPT (Release 1.0)		
	5560 IPT (Release 2.0)		
	5570 Media Tablet		
	Other Models:		

IP Phone Accessories	IP Programmable Key Module 12		
	IP Programmable Key Module 48		
	Line Interface Module		
	IP Paging Unit		
	Cordless Accessories Module		
	Cordless Handset		
	Cordless Headset		
	Power Dongle (Cisco compliant)		
	Gigabit Ethernet Stand		
	Wireless LAN Stand		
	Other Accessories:		
Conference Phones	5310 IP Conference Unit		
	Other Conference Units:		
Consoles	5550 IP Console		
	5540 IP Console		
	SUPERCONSOLE 1000		
	SUPERCONSOLE 2000		
Mitel Wireless Phones	SpectraLink • Netlink e340 • NetLink h340 • NetLink i640 • SVP Server • NetLink OAI Gateway • Netvision Handset	_____ _____ _____ _____ _____ _____	Refer to SpectraLink documentation on the Mitel Customer Documentation site.
	IP-DECT Wireless Solution (GLOBAL) • Site Survey Kit • Base Stations • Wireless Services Messaging Gateway (WSM) • 5602 Wireless Handset • 5606 Wireless Handset	_____ _____ _____ _____ _____	Refer to IP-DECT Wireless Solution (GLOBAL) documentation on the Mitel Customer Documentation site.
	IP-DECT (EMEA only) • Site Survey Kit • Open Mobility Manager • Radio Fixed Parts • OpenPhone 27 • KIRK Wireless Handsets	_____ _____ _____ _____ _____	Refer to IP-DECT Installation and Configuration Guide, Site Survey Guide, and

			OpenPhone 27 User Guide
Third Party Wireless System	If present on site, identify • System Manufacturer/Supplier • System Model • Software Version • Supported Protocol(s) • Handset Models • Number of Handsets in use • Number of Radio Fixed Parts • Type of Management Interface	_____ _____ _____ _____ _____ _____ _____ _____	Obtain site configuration details to assess compatibly of third-party system with the Mitel 3300 ICP system
SIP Phones	5212 IP		Refer to System Administration Tool online help for list of supported RFCs.
	5224 IP		
	5320 IP		
	5330 IP		
	5340 IP		
	Mitel Navigator SIP Phone		
	Kirk Wireless Handsets		
	Other SIP Phones:		
Norstar Supported Phones CITELlink Gateway required to support these Norstar phones.	M7100		Refer to the CITELlink Installation and Configuration (Nortel) Guide for details
	M7208		
	M7208N		
	M7310		
	M7310N		
	M7324		
	T7100		
	T7208		
	T7406		
	T7208		
Meridian Supported Phones CITELlink Gateway required to support these Meridian phones	A2008		Refer to the CITELlink Installation and Configuration (Meridian) Guide for details
	M2006		
	M2008		
	M2616		
	M3110		
	M3310		

	M3820		
	M3901		
	M3902		
	M3903		
	M3904		
Digital Phones	SUPERSET 4015		Refer to the General Information Guide for descriptions
	SUPERSET 4025		
Digital Phone Accessories	12 Button Programmable Key Module		
	48 Button Programmable Key Module		
	Mitel Analog Interface Module 2		
Analog Phones	Standard DTMF telephones		

Table 5. Identifying Embedded Application Requirements

Embedded Application	Details		Reference
ANSWER PLUS Automatic Call Distribution II (ACD 2000)	Identify high-level requirements: • Extended Agent Skill Groups • Skill-Based Routing • Real-Time Event Recording • ACD Agent Hot Desking • ACD Scalability • ACD Express • Networked ACD 2000		Click **System Applications** and then click **Customer Interaction**.
	Review ACD scalability options	❐	Click **System Applications** and then click **Customer Interaction**, then click **ACD Scalability**.
	Plan ACD implementation • Identify Agent Staffing Levels • Define Call Handling • Review ACD Resource Maximums • Group Agents by skill type • Complete Agent Skill Planner • Complete Path Planner • Define Greetings and Announcements	❐ ❐ ❐ ❐ ❐ ❐ ❐	Click **System Applications** and then click **Customer Interaction**, click **ACD 2000,** then click **ACD 2000 Planning**.
	Number of ACD Active Agents licenses	_____	
	Extended Agent Skill Groups • Requires Extended Agent Skill Groups configuration option enabled in License and Option Selection form • Number of Agent Groups • Number of Agents per group	❐ _____ _____	Click **System Applications** and then click **Customer Interaction**, click **ACD 2000,** then click **ACD 2000 Extended Agent Skill Groups**.
ANSWER PLUS Automatic Call Distribution II (ACD 2000) - continued	Skill-based Routing • Skills based routing is enabled by default. • Determine Skill Levels. Skill Level is a value between 1 (highest skill level) and 255 (lowest skill level) • Assign a skill level to each agent.	❐	Click **System Applications** and then click **Customer Interaction**, click **ACD 2000,** then click **ACD 2000 Skill-based Routing**.

Embedded Application	Details		Reference
	Real Time Event Recording Records the activity of the entire ACD operation. Events are divided into two groups: • call events which report on individual ACD agent activity • group statistics events which provide a cumulative reports on agent skill group usage	☐	Click **System Applications** and then click **Customer Interaction**, click **ACD 2000,** then click **Real Time Event Recording**.
ACD Hot Desk Agents	• 3300 Release 7.0 software or later is required. • Use of ACD hot desk agents and standard ACD agents in the same ACD system, is not supported. • ACD agent hot desking is only supported on ACD sets. • Review planning rules and licensing requirements • Is conversion of existing ACD agents required?	☐ ☐ ————	Click **System Applications** and then click **Customer Interaction**, click **ACD 2000,** then click **Real Time Event Recording**.
Networked ACD	• Identify Distributor system • Identify Answerpoint system 1 • Identify Answerpoint system 2 • Identify Answerpoint system 3 • Identify Answerpoint system 4	———— ———— ———— ———— ————	Click **System Applications** and then click **Customer Interaction,** then click **Networked ACD**.
Bandwidth Management	• Obtain network diagram that identifies any existing network bottlenecks	☐	See the System Administration Tool Online Help. Click **Voice Networking**, click **Manage Network**, then click **Bandwidth Management**.
	• Review site configuration examples in System Administration Tool online help	☐	
	• Create a zone tree diagram of site and labeled network elements, zones, and zone access points (ZAPs)	☐	
	• Obtain bandwidth limits from IT department that will be assigned to the voice media streams between the zones.	☐	
Emergency Services Support	• Review country/state/province regulations that govern Customer Emergency Services ID (CESID) implementation	☐	Click **System Applications,** click **General Business Solutions**, then click **Emergency**
	• Identify Emergency Services Number (for example 911 or 999)	————	

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Embedded Application	Details		Reference
	• CESIDs required for		**Services**.
	• every phone or	❏	
	• shared phones?	❏	
	• SIP devices	❏	
	• Record number of CESIDs required for site	_____	
	• Obtain CESIDs from local carrier	❏	
	• Obtain contact information for Public Service Access Point (PSAP)	❏	
	• Ensure Layer 2 switches on site support Cisco Discovery Protocol (CDP) or Spanning Tree Protocol (STP)	❏	
	• Ensure system configuration provides all extensions with access to outgoing trunks	❏	
	• Should attendant be notified of emergency calls (Local Notification)?	❏	
	• Is Emergency Response Advisor (NA only application) required?	❏	
FAX Support	• Identify types of FAX support required		Click **Features Reference,** click **Features D to G**, then click **FAX Over IP Support**.
	• PSTN using analog signaling	❏	
	• IP Networking using G.711 pass through	❏	
	• IP Networking using FAX Relay (T.38)	❏	
	• FAX Relay T.38 support requires:		
	• 3300 Release 9.0 or later software	❏	
	• DSP II module (PN50005751)	❏	
	• T.38 Licenses and Compression Licenses	❏	
	• Supported only on MXe, CX/CXi, and AX controllers	❏	
Hot Desking (Hot Desking requires licenses)	• Identify type of hot desking configuration		See the System Administration Tool Online Help, click **System Applications,** click **Mobility**, then click **Hot Desking** or **External Hot Desking**.
	- Nodal	❏	
	- Clustered	❏	
	- Resilient Clustered	❏	
	- External Hot Desking	❏	
	• Resiliency increases licensing requirements		

Embedded Application	Details		Reference
	• No. of Hot Desk users	_____	For licensing requirements, click **Hot Desking** and then click **Programming** and then click **Overview**.
	• No. of IP User Licenses required (one per user)	_____	
Hotel/Motel (Hospitality)	• Record number of guest rooms	_____	See the System Administration Tool Online Help, click **System Applications,** click **Hospitality**, then click **Hotel/Motel**.
	• Determine guest room extension numbering (same as room numbers?)	_____	
	• Define call restrictions from rooms	❒	
	• Is call blocking required between rooms?	❒	
	• Is message registration (call metering) required?	❒	
	• Is a 5540 IP Console, 5550 IP Console or SUPERCONSOLE 1000 required for the front desk?	❒	
	• Identify printer requirements. Printer can be connected to 5550 IP Console or SUPERCONSOLE 1000	❒	
	• Is Voice Mail Hospitality/PMS option (purchasable option in License and Option Selection form) required?	❒	Click **System Applications,** click **Hospitality**, click **Hotel/Motel**, and then click **Property Management System**.
	Are Suite Services required		Click **System Applications,** click **Hospitality**, then click **Suite Services**.
	• Single Suites	❒	
	• Linked Suites	❒	
Multi-Level Precedence and Pre-emption (MLPP)	• Requires MLPP option (purchasable option in License and Option Selection form)	❒	See the System Administration Tool Online Help, click **System Applications,** click **General Business Solutions** then click **MLPP**.
	• Supported for incoming and outgoing trunk calls on T1 ISDN PRI circuits, and for internal calls (calls between stations on the same switch)	❒	
	• Assign maximum Precedence levels to the directory numbers of users	❒	
	• Assign users to Service Domains	❒	
Music On Hold	Check applicable copyright laws. Is a license required from the local performing rights society or copyright	❒	See the System Administration Tool Online Help,

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Embedded Application	Details		Reference
	owner to use a music source?		click **Feature Reference,** click **Features M to O** then click **Music on Hold**.
	Identify type of Music on Hold required		
	• Embedded	❐	
	• Digital	❐	
	• Analog	❐	
	Embedded Music on Hold requires		See the System Administration Tool Online Help, click **Forms Reference,** click **Forms S to Z** then click **System Audio Files Update**.
	• Audio file in the following format: WAV, A-law or m-law (G.711), 8 kHz, 8-bit, mono.	_____	
	• Music on Hold limits are dependent on system type. Identify system limits on		
	- Total size of audio files (MB)	_____	
	- Maximum audio time	_____	
	- Maximum number of music files	_____	
	Digital Music on Hold requires:		See the Hardware Technical Reference Manual for specifications
	• an external music source (for example, radio) connected to a DNIC Music on Hold/Pager Unit (DMP)	❐	
	• the DMP must be connected to a Peripheral Cabinet DNI Line Card	❐	
	Analog Music on Hold requires an external music source (for example, radio) connected to the		
	• controller	❐	
	• Universal ASU, or	❐	
	• E&M Trunk Card in a peripheral cabinet	❐	
Paging	• Loudspeaker Paging (emulates E&M paging), or	❐	See the System Administration Tool Online Help, click **Features Reference,** click **Features M to O** then click **Paging**.
	• IP Paging	❐	
	Loudspeaker Paging requires		
	• Loudspeaker Pager (amplifier)	❐	
	• Connects to paging port on Universal ASU, Analog Main Board, or Analog Option Board	❐	
	IP Paging requires		
	• IP Paging Unit	❐	
	• Loudspeaker Pager (amplifier)	❐	
	• Connects to IP network	❐	
	• No. of paging zones (15 max)	_____	
	• No. of paging groups	_____	

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Embedded Application	Details		Reference
Property Management System	Requires Voice Mail Hospitality/PMS option (purchasable option in License and Option Selection form)	❏	Click **System Applications,** click **Hospitality**, then click **Property Management System (PMS)**.
	Identify type of connection required between PMS system and 3300 ICP:		
	• Direct IP Connection (3300 ICP Rel 6.0 or later required)	❏	
	• RS-232 Connection via the 5550 IP Console	❏	
	• RS-232 Connection via a Serial Port Converter (such as the Precidia Technologies Ether232)	❏	
Ring Groups	• Ring Groups required?	❏	Click **Features Reference,** click **Features P to R**, then click **Ring Groups** or **Ring Groups - Personal**
	• Type of ring group		
	- ring all extension simultaneously (Ring All)	❏	
	- one at a time (Cascade)	❏	
	- personal Ring Groups	❏	
	• No. of ring groups (max 176)	_____	
	• No. of members in each group (max 32)	_____	
	• Identify ring group overflow points	❏	
Station Message Detail Recording (SMDR)	• Printer or suitable output device available?	❏	Click **System Applications,** click **General Business Solutions**, then click **SMDR**.
	Identify recording requirements:		
	• Internal SMDR	❏	
	• External SMDR	❏	
	• Extended Recording Level 1	❏	
	• Extended Recording Level 2	❏	
Tenanting	• Requires Tenanting option (purchasable option prior to MCD Release 5.0)	❏	Click **System Applications,** click **General Business Solutions**, then click **Tenanting**.
	• Tenanting is NOT supported	❏	
	- in clusters or networks		
	- with hot desking		
	- with resiliency		
	• No. of tenants (max 64)	_____	
	• Block or allow calls between tenants?	_____	
	• Create lists of shared and tenant specific features	❏	
	• Night Service switching done centrally	_____	

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Embedded Application	Details		Reference
	or on a tenant by tenant basis?		
	• Tenant specific music on hold required?	_____	
Voice Mail (Embedded Messaging) Note: AX controller requires a 4 GB flash upgrade to support embedded voice mail.	Identify number and type of mailboxes (maximum 750)		See the System Administration Tool Online Help, click **System Applications,** click **Messaging,** then click **Voice Mail (Embedded)**.
	• Extension Mailboxes	❒	
	• Message Only	❒	
	• Transfer Only	❒	
	• Information Only	❒	
	• Auto Attendant Park and Page	❒	
	Collect the following information:		
	• Length of mailbox numbers (default 4)	_____	
	• Business Hours	_____	
	• Required prompt languages	_____	
	Identify feature requirements		Click **System Applications,** click **Messaging,** click **Voice Mail (Embedded)**, and then click **Features**.
	• Automated Attendant	❒	
	• Multi-Level Auto Attendant	❒	
	• Bilingual Option	❒	
	• Message Notification	❒	
	• Visual Voice Mail	❒	
	• Record Announce Devices (RAD)	❒	
	• System Greetings (Primary, Alternate, RAD Greetings)	❒	
	• Voice Mail Softkeys	❒	
	• Advanced Voice Mail option (purchasable option prior to MCD Release 5.0). Enables the Record-A-Call, Forward to E-mail and Personal Contacts features.	❒	
	• Property management System (PMS) Integration (purchasable option in License and Option Selection form)	❒	
Voice Mail (Networked)	Supported for		Click **System Applications,** click **Messaging,** and then click **Networked Voice Mail**.
	• Embedded Voice Mail Servers (networked and clustered)	❒	
	• NuPoint Unified Messenging Servers	❒	
	Requires		
	• Voice Mail Networking option on every 3300 ICP element in cluster or network. (purchasable option in License and Option Selection form)	❒	

Embedded Application	Details		Reference
	• Enterprise Manager	☐	
	Ensure LAN/WAN provides sufficient bandwidth to accommodate the messaging load.	☐	

Table 6. Identifying External Application Requirements

External Application	Details		Reference
Conferencing, Collaboration, and Mobility			
Mitel Applications Suite (MAS)	Identify system configuration • Server only mode (internal server on LAN) • Server gateway mode (internet facing server with firewall capability)	☐ ☐	See the Mitel Applications Suite Installation and Maintenance Guide
	Identify required applications (blades) • NuPoint Unified Messenging • Teleworker • Unified Communicator Mobile User Services and Provisioning • Suite Applications Server • Audio and Web Conferencing (AWC)	☐ ☐ ☐ ☐ ☐ ☐	
	Review • Hardware and software requirements • Performance and capacities • Licensing requirements • Router/gateway/firewall requirements	☐ ☐ ☐ ☐	See the Mitel Applications Suite Engineering Guidelines and the blade engineering guidelines
	Record number of end-user portal web sessions required	_____	
Teleworker Solution or Mitel Border Gateway (MBG) Solution	Teleworker Solution (MAS) or Mitel Border Gateway (MBG) Solution	☐ ☐	The Mitel Border Gateway is a standalone Teleworker solution for high-volume sites (100 to 4000 users)
	Number of Teleworkers	_____	Refer to the MAS Engineering Guidelines and Teleworker Engineering
	Identify configuration • Server only mode (internal server on LAN) • Server gateway mode (internal facing server with firewall)	☐ ☐	

External Application	Details		Reference
	Corporate site requirements:		Guidelines
	Hardware:		
	• MAS Server		
	• Qualified standalone server, or	☐	
	• Application Processor Card (available for CX/CXi/MXe controller in server only mode)	☐ ☐	
	Software:		
	• Compatible 3300 ICP software release	☐	
	• MAS or MSL software version	☐	
	• Teleworker blade	☐	
	Other:		
	• Teleworker licenses	☐	
	• Compatible IP Phones	☐	
	• Firewall	☐	
	• Daisy chained servers (optional)	☐	
	Remote site requirements		
	• IP Phones	☐	
	• Router or Internet Gateway	☐	
Quick Conference	Maximum total number of conference participants	———	See the Quick Conference Software Blade Guide and the Quick Conference Engineering Guidelines
	Hardware:		
	• MAS server	☐	
	• Qualified standalone server, or	☐	
	• Application Processor Card (available for CX/CXi/MXe controller in server only mode)	☐	
	Software:		
	• Compatible 3300 ICP software release	☐	
	• MAS or MSL software version	☐	
	• Quick Conference blade	☐	
	Other:		
	• Quick Conference licenses		
	• Supported web browser	☐	
	• Firewall	☐	
		☐	
	Review performance	☐	

External Application	Details		Reference
Unified Communicator Mobile	Hardware: • MAS server • Qualified standalone server, or • Application Processor Card (available for CX/CXi/MXe controllers in server only mode) Software: • Compatible 3300 ICP software release • MAS or MSL software • Unified Communicator Mobile blade Other: • Supported IP Phones • Unified Communicator Mobile client licenses • Supported web browser • Firewall	❒ ❒ ❒ ❒ ❒ ❒ ❒ ❒ ❒ ❒	See the Unified Communicator Mobile Engineering Guidelines
	Review performance	❒	
Audio and Web Conferencing	Hardware • MAS server • Application Processor Card (available for CX/CXi/MXe controllers in server mode only) Software • MAS 1.1 or later software Other • AWC licenses (1 licenses provides 20 user accounts) • Firewall and Bandwidth requirements	❒ ❒ ❒ ❒ ❒	See the Audio and Web Conferencing Configuration and Maintenance Manual and the Mitel Application Suite Engineering Guidelines
Secure Call Recorder	Hardware Software • MSL Software • SRC blade Other • SRC Licenses • Firewall • DHCP Configuration • SRC cannot reside on the same server as the Teleworker application	❒ ❒ ❒ ❒ ❒ ❒ ❒ ❒	Refer to Qualified Hardware List for MSL at Mitel Online Refer to the Secure Call Recorder Installation and Maintenance Manual

External Application	Details		Reference
Voice First Application (video conferencing)	Hardware requirements for a typical installation: • Video Server (PC) • Office: Mitel IP Phone (for example 5220 IP Phone); Video Endpoint (PC with 3rd party web camera running VCOM VPoint) • Conference Room: 5310 Conference Unit, VCON HD3000 Video Appliance or VCON HD 5000 Video Appliance with 3rd party television set	❐ ❐ ❐	See the Voice First Application General Information Guide for an overview of the product. See the Voice First Application Engineering Guidelines for detailed requirements.
	MXM Voice First Application Server: • PC Platform requirements • Video Terminal requirements	❐ ❐	
	VCB Video Application Conference Bridge • System configuration requirements • Bandwidth considerations	❐ ❐	
	VPoint HD Software Video Conferencing Client • Platform requirements • Supported USB cameras	❐ ❐	
	HD3000 Set Top Video Conferencing Client • TV Monitor (33 inch recommended) • TV Standard: N.A. - NTSC; Europe - PAL • Maximum bandwidth on LAN: 4 Mbps	❐ ❐ ❐	
	HD5000 High Definition Multimedia Conferencing System • PC Monitor • TV Monitor • Maximum bandwidth on LAN: 4 Mbps	❐ ❐ ❐	
	Network considerations • Give voice priority over video • Give video priority over non-critical data traffic	❐ ❐	

External Application	Details		Reference
Live Business Gateway (Microsoft Live Communications Server and Office Communicator Desktop)	System configuration requirements include • Mitel 3300 ICP (Rel 7.0 UR2 or higher) • Mitel Live Business Gateway Release 3.1 (available for Windows and Linux operating systems) • Microsoft OCS 2007 (or LCS 2005 Service Pack 1) • Microsoft Office Communicator • Microsoft Active Directory Server • Mitel supported phone (IP or DNIC) • Layer 2 Ethernet Switch • Mitel Standard Linux Release 8.2 or higher (for the Linux version only)	❏ ❏ ❏ ❏ ❏ ❏ ❏ ❏	Refer to the Live Business Gateway Installation and Maintenance Guide and the Live Business Gateway Engineering Guidelines
	Review the following • Gateway workstation requirements • Security considerations • Bandwidth requirements • Performance guidelines	❏ ❏ ❏ ❏	
Your Assistant	Identify required version • Your Assistant Lite • Your Assistant Premium	❏ ❏	Refer to the 3300 ICP General Information Guide for a description of these versions/optio ns.
	Identify required options • Assistant Softphone Option • Your Assistant Collaboration Option	❏ ❏	
	Review hardware and software requirements	❏	Refer to the Your Assistant Administrator's Guide.
	Plan deployment	❏	
	Design for performance and availability	❏	
Messaging Solutions			
NuPoint Unified Messenging	Record number of required • voice mailboxes • channels/ports • prompt sets • web sessions	_____ _____ _____ _____	See the NuPoint Unified Messenging Engineering Guidelines for details.

External Application	Details	Reference
	Collect the following information to determine the message storage requirements • Maximum number of messages allotted per user • Days to keep read messages • Days to keep unread messages • Message File Format used	
NuPoint Unified Messenging - continued	Review Engineering Guidelines for • Server hardware requirements ❑ • Deployment scenarios ❑ • Pre-Installation requirements ❑ • Network guidelines ❑	See the NuPoint Unified Messenging Engineering Guidelines. In the NuPoint Unified Messenging Technical Documentation Online Help, click **Hardware and System Information**.
	Identify platform • Distributed Data Center (AANAS Platform with Active/Active Model) ❑ • NuPoint Unified Messenging IP Server ❑ • NuPoint Unified Messenging IP Model 640 ❑	

	Identify system integration
	
	• ESMI ❑
	
	• T1/D1 SMDI ❑
	
	• Enhanced Data Link ❑
	
	• PMS ❑
	
	• Enhanced Inband ❑
	
	• Digital
	
	   - Intel PBX IP Media Gateway ❑
	
	   - Intel T1 IP Media Gateway ❑
		In the NuPoint Unified Messenging Technical Documentation Online Help, click **Integration Types**.

	Resiliency required? ❑	In the NuPoint Unified Messenging Technical Documentation Online Help, click **Hardware and System Information** and then click **Resiliency**.

External Application	Details		Reference
NuPoint Unified Messenging - continued	Identify optional features (licenses must be purchased for optional features):		In the NuPoint Unified Messenging Technical Documentation Online Help, click **Optional Features.**
	• Call Detail Recorder _____	❐	
	• Call Director _____	❐	
	• Competitive TUI Emulator_____	❐	
	• Cut-Through Paging _____	❐	
	• Dual MWI Support _____	❐	
	• European French Prompts _____	❐	
	• NP Fax _____	❐	
	• NP Admin API _____	❐	
	• NP Admin Mailbox Administration _____	❐	
	• NP Forms _____	❐	
	• NP Net _____	❐	
	• NP On Demand _____	❐	
	• NP Rapid Dial _____	❐	
	• NP Receptionist _____	❐	
	• NP Wakeup _____	❐	
	• Record a Call _____	❐	
	• Recorded Announcement Device ____	❐	
	• SMSC-SMPP _____	❐	
	• SMS Notification (UK only) _____	❐	
	• Speech Auto Attendant _____	❐	
	• Superset Softkeys _____	❐	
	• Unified Messaging _____	❐	
	• VPIM _____	❐	
Speech Server Applications	Speech Server Configuration		See the Speech Server General Information Guide and Start Here Guide
	• Speech Server	❐	
	• Attendant (standalone with internal directory)	❐	
	• Unified Messaging	❐	
	• Active Directory Integrated AA system	❐	
	• Messaging Server	❐	
	• Messaging Server Voice Mail	❐	

External Application	Details		Reference
	Information required for licensing • Corporate Directory (No of names) • Personal Directories (no. of contacts) • No. of Speech Ports • No. of Advanced Text to Speech Ports • No. of Unified Messaging users	_____ _____ _____ _____ _____	See the Speech Server Engineering Guidelines for licensing details
	Available Options • Mobility Option • Bilingual Attendant (English/French) • Bilingual Attendant (English/Spanish) • Calendar and FAX Management • FAX Integration Option • Speech Server Active Directory • Speech Server Corporate Directory	 ❒ ❒ ❒ ❒ ❒ ❒ ❒	See the Speech Server General Information Guide for descriptions.
Messaging Server	Review the following • PBX integration information • System capacities • Language support • Server hardware and software requirements	 ❒ ❒ ❒ ❒	See the Messaging Server Engineering Guidelines for details
	Identify the number of • Unified Messaging users • Integrated Messaging Desktop users • Text to Speech ports • Automatic Speech Recognition ports	 ❒ ❒ ❒ ❒	
	Record the software and license requirements: • Messaging Server Base Software • Text to Speech port licenses • Unified Messaging user licenses • Integrated Messaging user licenses • Automatic Speech Recognition (ARS) port licenses	 ❒ ❒ ❒ ❒ ❒	

External Application	Details		Reference
	Identify optional software requirements		
	• additional IMAP-TSE Gateways (for each additional email environment)	❏	
	• Fax Mail Integration (incoming faxes only)	❏	
	• VPIM and AMIS networking (AMIS is not supported with IP Integration)	❏	
	• additional voice ports (in 4 port increments)	❏	
	• ActiveX Software Developer's Kit (for custom PIM integration)	❏	
	• Multilingual Language support (one language included with base)	❏	
	• Additional Tenants	❏	
	• Additional IMAP-TSE activation	❏	
Customer Interaction Solutions (Contact Center Solutions)			
Contact Center Enterprise Edition	Solution for sophisticated call center		See the Customer Interaction Solutions General Information Guide for an overview of the solutions.
	• Greater than 25 agents	❏	
	• More than five supervisors	❏	
Contact Center Business Edition	Solution for basic call center		
	• 25 agents or fewer	❏	
	• Fewer than five supervisor	❏	
Add-on applications available for both Contact Center Enterprise Edition and Contact Center Business Edition	Interactive Contact Center		See the Customer Interaction Solutions User Guide.
	• provides virtual queuing	❏	
	Interactive Visual Queue		
	• provides agent call monitoring within queues	❏	
	Contact Center Softphone		
	• allows agents to use their computers as an agent IP phone	❏	
Add on applications available for both Contact Center Enterprise Edition and Contact Center Business Edition - continued	Intelligent Queue		See the Intelligent Queue Installation Guide
	• provides recorded announcements to callers	❏	
	Agent Portal		See the Agent Portal - Installation and Configuration Guide
	• displays call information on agent desktop computer	❏	
	Traffic Analysis		See the Call Accounting
	• reports traffic data	❏	

External Application	Details		Reference
	Call Accounting • enables you to monitor and control telecommunications costs,	❐	Installation Guide and the Call Accounting Reports Guide
Add on applications available for Contact Center Enterprise Edition only	Contact Center Management Enterprise Node • provides historical reporting and real-time monitoring	❐	See the Customer Interaction Solutions User Guide.

	• ACD Resiliency
	
	• provides ACD agent resiliency in conjunction with 3300 ICP resiliency
	
	• ACD Hot Desk Agents required
	
	• identify level of ACD Resiliency required
	  - Basic Resiliency
	  - Advanced Resiliency
	  - Full Resiliency
		❐
		
		———
		
		❐
		❐
		❐
			See the
			
			• ACD Resiliency Getting Started Guide
			
			• 3300 ICP Resiliency Guidelines

	High Availability • supports failover to secondary server	❐	See the Customer Interaction Solutions User Guide.
	Multimedia Contact Center • Integrates with Microsoft Exchange 2003 to provide distribution of emails, chats and faxes.	❐	See the Multimedia Contact Center Installation Guide
	Contact Center Scheduling • displays agents activities in relation to a schedule	❐	See the Contact Center Scheduling Installation Guide
Add on applications available for Contact Center Enterprise Edition only	Schedule Adherence • works with Contact Center Scheduling to show you what agents are doing in relation to what is scheduled, in order to quickly identify areas of non-adherence	❐	See the Customer Interaction Solutions User Guide.
	Flexible Reporting • customizes reports and report templates	❐	
MARATHON INSPIRATIONPro:	• customizes reports and report templates provides contact center agent call recording (external management application)	❐	

External Application	Details		Reference
SpectraLink Wireless Solution	Identify number of wireless handsets: • 340 • h340 • i640	——— ——— ———	See NetLink SVP Server - Installation, Configuration, and Administration Guide
	Identify NetLink server models and number required: • SVP 100 - 80 calls simultaneously • SVP 020 - 20 powered on handsets • SVP 010 - 10 powered on handsets The servers support Quality of Service between 3300 ICP and handsets. Note that all servers with a subnet must be of the same model type.	——— ——— ———	
	Are OAI Gateways (optional) required? Gateway supports text messaging to handsets.	———	See NetLink Open Applications Interface (OAI) Gateway - Installation and Administration Guide
	Identify number of Access points • Obtain from third party vendors	———	See NetLink Wireless Telephone Access Point Compatibility Guide
	See the following additional documentation: *Access Point Configuration Note* (72-99xx-00 where xx indicates a number Corresponding to the type of access point.). Available at http://www.spectralink.com/consumer/resources/wifi_compatibility.jsp. *Deploying NetLink Wireless Telephones: Best Practices* white paper. Available at http://www.spectralink.com/consumer/resources/white_papers.jsp.		
IP-DECT Wireless Solution (GLOBAL)	• Site survey complete • Site plan available • No. of base stations • Wireless Services Messaging (WSM) Gateway • No. of 5602 wireless handsets • No of 5606 wireless handsets	——— ——— ——— ——— ——— ———	See the IP DECT Wireless Solution (GLOBAL) Site Survey Guide

External Application	Details		Reference
IP-DECT Wireless Solution (EMEA only)	• Site survey complete • Site plan available • No. of RFPs • No. of RFP Clusters • No. of OpenPhone 27 handsets	_____ _____ _____ _____ _____	See the IP DECT Wireless Solution (EMEA) Site Survey Guide

	Each RFP requires any one of the following –48v DC power supplies:
	
	• 802.3af compliant power supply
	
	• Inline Power Adapter
	
	   - UK variant: PN 50002080
	
	   - International variant: PN 50002090
	
	• Power Adapter (from DeTeWe Corp)
	
	   - UK variant: PN 51007304
	
	   - International variant: PN 51007304
		
		❒
		
		❒
		❒
		
		❒
		❒
			See the Mitel IP DECT Technical Manual

	OpenPhone 27 • 3300 ICP IP User License required for each handset • 3300 ICP IP User License required for each user RFP Licensing • License A: For small installation sites with 1 or 2 RFPs. • License B: For large installation sites with 3 to 256 RFPs. • License C: Upgrade from A to B.	 _____ _____ ❒ ❒ ❒	
Third-Party Equipment Solutions			
CITELlink Gateway	Types of phones on site: • Norstar 7000-series IP Phones • Meridian 1 IP phones • Both	 ❒ ❒ ❒	Ensure set models that are on site are supported by the gateway. See Table 4. Identifying Peripheral Requirements for a list of the supported models.
	Gateways required: • PN 1695MTLHSG supports up to 24 Norstar 7000-series IP phones • PN 1898MTLHSG supports up to 24 Meridian 1 IP phones	 ❒ ❒	

External Application	Details		Reference
	Also required • Layer 2 switch programmed for 10-Base-T Ethernet 1/2 duplex • 3300 ICP controller must have Release 4.1 software or later • IP User License for each Norstar or Meridian set	❐ ❐ ❐	See the CITELlink Installation and Maintenance Guides on the Mitel Customer Documentation site

Table 7. Identifying Management Application Requirements

Management Application	Details		Reference
Enterprise Manager	Review • platform requirements • client station requirements • LAN/WAN requirements • Firewall requirements	 ❐ ❐ ❐ ❐	See the Enterprise Manager Engineering Guidelines and Enterprise Manager Technician's Handbook
	Identify number and type of nodes in network	❐	
	Identify number of licenses required for nodes (not all node types require licenses)	❐	
	Identify required options: • Report Generator • HP OpenView	 ❐ ❐	
	Identify management/diagnostic tools • Mitel Communications Director (MCD) Software Installer • Voice Quality Manager (IP Phone Analyzer) • Audio File Manager • ISDN Maintenance and Administration Tool (IMAT) • Integrated User Management • Alarm Monitor • Viola NetAlly RealTime Client	 ❐ ❐ ❐ ❐ ❐ ❐ ❐	

Management Application	Details		Reference
Management Access Point (MAP) (Provides secure remote management access and optional alarm monitoring of network nodes (for example 3300 ICP or SX-2000 systems) over public network connections.)	Remote Management option is enabled by default on the 3300 ICP.	❑	See the System Administration Tool Online Help.
	Identify number and type of network nodes	_____	See 7100 MAP Product Information Guide
	Identify types of remote access required: • Dialup network (PPP) access • VPN access over WAN	 ❑ ❑	
	Identify model(s) of MAP required: • MAP Pro: provides access to up to 5 nodes. Wall mountable. • MAP E/M: provides access to up to 5 nodes. Rack mountable. • MAP E/M/S/U: provides access to up to 16 nodes and includes an Uniterruptible Power Supply (UPS). Rack mountable.	 ❑ ❑ ❑	

Call Recording Solutions	Identify Call Recording Solution requirements:
	
	• MARATHON EVOLUTION: records analog, digital, DNIC and trunk side calls for large sites
	
	• MARATHON EVOlite:records analog, digital, DNIC and trunk side calls for small sites
	
	• MARATHON IP Monitor: records VoIP calls
	
	• Players to replay recorded calls
	  - PowerPlay
	  - WebPlay
	  - Instant WebPlay
	
	• MARATHON INSPIRATIONPro: provides contact center agent call recording
		
		❑
		
		❑
		
		❑
		
		❑
		❑
		❑
		
		❑
			See the Call Recording Solutions General Information Guide for details.

	Review hardware and software requirements	❑	
Emergency Response Advisor (not available in UK)	Provides local security personnel with emergency call display on a response console.	❑	Emergency Response Advisor Installation and
	Review computer requirements for ERA server and remote terminals	❑	

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Management Application	Details		Reference
	Identify licensing requirements: • Main Terminal license includes use of one remote terminal • Additional remote terminal licenses (up to 92 remote terminals)	_____ _____	Maintenance Guide

Table 8. Identifying 3300 ICP Networking Requirements

Step	Details		Reference
1. Identify 3300 ICP networking and clustering requirements			
Will site be networked or clustered to other systems?	• A network is a group of elements that are interconnected via IP trunks and/or DPNSS over T1 or E1 trunks. Each network element is configured with a Primary Node Identifier (PNI) that allows calls to be routed between the elements. • A cluster is a group of interconnected elements that are configured together in such way that it appears to the end users that they are connected to a single large system.	❑ ❑	Refer to the System Administration Tool Help. Click **Voice Networking**, click **Configure Network** and then click **Planning** for a planning table and illustrated example.
How many elements in a cluster?	Licensing supports clusters that have up to 30, 60, or 999 elements.	_____	
Is clustered hospitality required	Provides hotel/motel features across a cluster	_____	
Is MSDN/DPNSS required?	MSDN/DPNSS is a digital signaling system that provides features across a private network of systems	_____	See the System Administration Tool Help. Click **Voice Networking**, and then click **Network Features** for descriptions of the supported features.
Are SIP based services required?	• SIP trunks allow the 3300 ICP to connect to the Service Provider through the SIP protocol over the IP network. • The SIP trunking solution provides basic feature functionality, billing capability, Emergency Services support, and FAX support. • Quick Conference SIP unit. What is the maximum number of expected conferences?	_____	Refer to the System Administration Tool Online Help for a description of the supported SIP functionality.
2. Identify System Data Synchronization (SDS) requirements			

Step	Details		Reference
SDS	Reduces the time required to set up and manage networks and/or clusters of 3300 ICPs by allowing you to • compare the data in a programming form of one system against the data in same form on another system. • start sharing system form data among a network or cluster of elements (3300 ICP systems) • synchronizes the form data from a master element across the forms on the other network	❑	See the System Administration Tool Online Help, click **Voice Networking,** click **Manage Network**, then click **System Data Synchronization**.
	If SDS will be used for initial site configuration, identify a master controller.		
3. Identify resiliency requirements			
IP Device Resiliency is configured and maintained from the 3300 ICP System Administration Tool using RDN Synchronization.	Embedded Resilient Device support (allows you to configure and maintain device resiliency from the System Admin Tool using RDN Synchronization)	❑ ❑	See the Resiliency Guidelines In the System Administration Tool help, click **Voice Networking**, click **Manage Network**, and then click **Embedded Resilient Device Support**.
4. Identify Multi-Node Management Requirements			
Multi-Node Management (MNM) applications allow you to maintain a group of network elements that are grouped together within an SDS Administrative Group.	You can log in to a system administration tool session on an element in the administrative group and perform the following management tasks on other remote elements in the administrative group: **Application Reach Through** - access and program the forms that are not sharable through System Data Synchronization (SDS). **Fault Management** - monitor a summary of alarms for the administrative group or view the alarm details for each member node. **Backup and Restore** - perform database backups from one or all of the elements in the administrative group, or restore a database backup to a remote element in the administrative group.	❑ ❑ ❑	In the System Administration Tool help, click **Voice Networking**, click **Manage Network**, and then click **Multi-Node Management**.
Resiliency requires additional licenses and may require additional controllers	Device resiliency	❑	See the Resiliency Guidelines for descriptions
	IP console resiliency	❑	
	Resilient Hot Desking	❑	

Step	Details		Reference
Hunt Group resiliency is required to support NuPoint Unified Messenging resiliency.	Hunt group resiliency	❐	of functionality and hardware and software requirements.
	Resilient Ring Groups	❐	
	ACD resiliency	❐	
	SIP Endpoint Resiliency	❐	
	Embedded T1/E1 trunk resiliency (T1/E1 Combo MMC - PN 50005160)	❐	Refer to Appendix A of the Resiliency Guidelines for engineering rules.

Table 9. Identifying IP Network Requirements

Step	Details

1. **How many users on the network? How are they distributed and where are they located?**

2. **Is the network adequately sized to support the number of network users, features, and resources?**

3. **Are IP networking and compression required?**

4. **Have bandwidth limits and zones been identified?**

5. **Are there remote workers?**

6. **What level of redundancy is required? Redundant power supplies and UPS? Redundant uplinks to network servers and devices?**

7. **How is power distributed? Is power backup needed? For example, UPS, backup power generation, backup power generation, and multiple feeds?**

8. **Does the existing cable plant need to be upgraded?**

9. **Check the capacity of the switches that feed on to the core as well as those that feed the access layer. The network should never bottleneck. Deploy non-blocking, high-performance, high capacity switches.**

10. **Consider points of failure and design the network to minimize the impact of failure. Use resilient systems, redundant network configurations, spanning tree, and so forth.**

Site Engineering

Table 10. Engineering the System Solution

Step	Details	Reference
1. Determine system configuration:		
Identify business model	Multiple units system	Refer to Engineering Guidelines
	Distributed system	
	Hybrid model	
Review provisioning rules	System resources	
	Traffic	
2. Determine Voice over-IP (VoIP) requirements:		
Review requirements:	Maintaining voice quality of service	Refer to Engineering Guidelines
	Maintaining availability of connections	
	Start-up and DHCP	
	802.1X EAP-MD5 Authentication	
	VMPS, CDP and Location Change Indication (E911)	
	Network considerations	
3. Apply site engineering rules to configuration:		
Site configuration rules	IP networking and trunks	See Engineering Guidelines
	# of DSPs versus Compression Licenses	
	Licensing	
4. Determine power requirements:		
	Controller power input	See Engineering Guidelines and Hardware Technical Reference Manual
	IP phone power (local and remote)	
	Power over Ethernet	
	Optional 5220 IP phone accessories	
	Uniterruptible power supply (UPS)	
5. Plan licensing:		
Review licensing rules	System licenses	See Engineering Guidelines
	Device and user licenses	

Step	Details	Reference
Note requirements for AMC connection	MCD Software Installer (SI) Tool • DNS Name Resolution • TCP/IP source port on SI Host • TCP/IP destination port on AMC • SI Host PC behind an HTTP Proxy Server	See Technician's Handbook
Note requirements for AMC connection (cont.)	3300 ICP • DNS Name Resolution • TCP/IP Source Port on the ICP • ICP behind an HTTP Proxy Server • CX/CXi-Specific WAN Considerations	See Technician's Handbook
6. Check site design through the System Engineering Tool. You can obtain this tool from Mitel Online at Training →Technical Training →Technician's Tool box. Download the System Engineering Tool from the Technician's Toolbox web page.		
7. Plan system programming parameters		
Determine the site settings for these system programming forms.	License and Options	Refer to **Forms Reference** in the System Administration Tool online help.
	DHCP Options	
	Interconnect Restrictions	
	Compression Zone Assignment	
	Class of Service	
	Class of Restriction	
	Trunk Circuit Descriptors	
	Automatic Route Selection	See the ARS Training Module for programming examples See System Administration Tool online help
	Call Rerouting	See **Forms Reference** in the System Administration Tool online help.
	Pickup Groups	
	Page Groups	

Step	Details	Reference
8. Plan voice mail		
Embedded Voice Mail	• Capacities • Default settings • Mailbox types (extension, message only, transfer only, information only) • Voice mail features • Auto attendant features • Multi-level auto attendant • System greetings • RAD greetings • Voice mail and PMS support	In the System Administration Tool online help, see **System Applications → Messaging → Voice Mail (Embedded)**
External Voice Mail (NuPoint Unified Messenging)	Integration type: • T1 or E1 integration with Simplified Message Desk Interface (SMDI) • Digital or analog integration with Intel PBX IP Media Gateways (PIMGs) • IP integration with 3300 ICP Hardware requirements Software requirements Planning parameters	Refer to the NuPoint Unified Messenging Start Here Guide and NuPoint Unified Messenging General Information Guide.
Networked Voice Mail	Your LAN/WAN must provide sufficient bandwidth to accommodate the messaging load for incoming and outgoing VPIM messages	In the System Administration Tool online help, see **System Applications → Messaging → Networked Voice Mail → Planning for Networked Voice Mail**
9. Plan cluster		
Define the cluster on the site plan	Assign PNIs if network has multiple clusters or standalone elements connected in a MSDN/DPNSS network Assign name to each cluster element Assign unique 1 to 3 -digit CEID index to each element Assign a unique 1 to 7 digit CEID digit string to each element. CEID digit strings must have the same number of digits Assign a unique Feature DN number to each cluster element	In the System Administration Tool online help, see **Voice Networking → Configure Network → Planning**

Step	Details	Reference
10. Perform wireless phone site survey		
IP-DECT wireless phones	• Survey site premises and identify possible locations for RFPs • Set up the kit • Enroll the test handsets • Take measurements • Determine number and adjust location of RFPs or base stations based on measurements	Refer to the • IP-DECT Wireless Solution (GLOBAL) Site Survey Guide, or • IP-DECT Wireless Solution (EMEA) Site Survey Guide Note that there are two variants of the IP-DECT Wireless Solution. The EMEA version is not supported in North America.
Spectralink wireless phones	• You perform a survey of the Access Point coverage after you have installed the Access Points. • The Spectralink wireless phones have a test mode that allows you to measure signal coverage.	Refer to "Certifying the NetLink e340/i640 Wireless Telephones" in the Netlink e340/i640 Setup and Administration Guide.
11. Plan the resilient network		
Determine	Network configuration	Refer to Resiliency Guidelines and Engineering Guidelines.
	Resilient topology	
	IP device distribution	
	License requirements	
	Resilient clustered hot desking	
	VLANs and DHCP options	
	Call routing	
	ARS routes	
	T1/E1 resiliency configuration	
	Resiliency support for voice mail	
	Resiliency support for wireless sets	

Table 11. Engineering the IP Network

Step	Details
1. Perform an assessment of the current network.	
2. Determine bandwidth and network performance requirements. How much bandwidth is required for the backbone, server, and end nodes. Identify required Zone Access Points (ZAPs).	
3. Design a network topology including the IP telephony equipment.	
4. Design a consistent end-to-end QoS policy, including VLAN 802.1p/Q and DSCP.	
5. Design a general network setup that includes DHCP, TFTP, firewalls, NAT, STP, CCDP, 802.1x.	
6. Consider ongoing network requirements. They continue to evolve after initial installation.	
7. Plan regular checks on voice quality performance.	
8. Consider staging the installation and commissioning if network is large.	
9. Review the following considerations for Layer 2 and LAN connections:	
Quality-of-service settings	Where needed within the Enterprise, ensure that VLAN (IEEE 802.1p/Q) is supported and can be configured. Consider the following: • Phone connection can handle both tagged and untagged traffic. • The port supports multiple egress queues. • The port supports Spanning Tree for emergency location. • The port supports power, if provided through the LAN. • Can the port that is connected to the 3300 ICP provide VLAN and priority tagging?
Traffic and bandwidth	• Identify areas of high traffic. For example, ACD agents where additional bandwidth may be needed, or where a 3300 ICP controller is required instead of a router. • Consider the network and traffic guidelines that are provided in the Engineering Guidelines. • Consider the IP address range and size. A larger range means less Layer 3 switching, but more broadcasts, negating the effect of the Layer 2 switching fabric.
DHCP	• Consider the location of the DHCP servers and the number of scopes to be handled. Note that each 3300 ICP controller has its own DHCP server. • Consider the lease time for the DHCP server. A starting time of 8 hours is recommended. This time can be reduced in a more mobile environment, or increased in a more stable environment.
TFTP	• If a network has many phones, more TFTP servers decrease the time required for the phones to register. • Each 3300 ICP controller has its own TFTP server, but you can also user additional external servers. Consider upgrades and how to control this across external TFTP servers.

10.	**Review the following considerations for Layer 3 and LAN connections:**
Quality-of-service Settings	• Ensure that routers have the ability to adjust MTU and support TOS/DiffServ settings. • For devices that bridge VLANs, ensure that the COS (Layer 2 priority) can be defined or that TOS/Diffserv to COS conversion is supported. • Ensure that the routers can provide ICMP-Redirect, especially where multiple paths may exist.
Traffic and bandwidth	• Identify areas of high traffic • Review the traffic and bandwidth information in the Engineering Guidelines. • If using a WAN link, ensure that you provide adequate Service Level Agreement on the connection. • Identify the type of connection between remote sites (for example, dedicated line, Frame Relay, MPLS, or VPNs) • Ensure that you have adequate bandwidth for the WAN protocol and for the number of channels. Consider signaling and end-device overhead. What is the CIR?
DHCP	• Where DHCP is used, but a local DHCP server is not available, ensure that the router is capable of forwarding DHCP requests (also known as "IP-helper" on certain products). • Ensure that DHCP forwarding loops are not created.
Firewalls and Network Address Translations (NAT)	• Firewalls provide restricted access • Ports for applications and voice may need to be opened or programmed • NAT is not application knowledgeable • Use of NAT may lead to one-way or no-way speech connections • Users of Mitel IP phones located on the Internet should use the TeleWorker solution. **Caution: Some applications that check firewall and network security monitor the LAN for anomalies in the traffic. Voice traffic sometimes appears as anomaly. Therefore, additional programming or exception conditions applied by this application are necessary to accept voice traffic as genuine.**
11.	**Consider the impact of 3300 ICP application on the network, specifically performance, sockets, monitors, virtual phones, and phone displays. See the specific application guidelines, for example "Engineering Guidelines for the Teleworker Solution" available through Mitel Online.**

Licensing Requirements

Table 12. Recording Licensing Requirements

Device	License	Number	Reference
3300 ICP License Requirements			
IP users & phones	IP Users license		See the 3300 ICP Engineering Guidelines for licensing information including descriptions of the license types and license limits.
User on ONS Phone	Analog Lines license		
CITELink phone	IP Users license		
User on TDM phone	No license, but counts against total number of users a system can handle		
Wireless phone (SpectraLink)	IP Users license		
Wireless phone (IP DECT)	IP Users license		
Hot Desk user	IP Users license		
Hot Desk ACD Agent	IP Users license		
ACD Agent	ACD Active Agents license		
Voice Mailbox	Voice Mail license (1 per user)		See the 3300 ICP Engineering Guidelines for licensing information including descriptions of the license types and license limits.
Basic Auto-Attendant	Voice Mailbox license		
Multi-Level Auto-Attendant	Voice Mail license (1 per node in the tree)		
Record-a-Call	Advanced Voice Mail license (system-wide; pre-Release 5.0)		
Auto Forward to Email	Advanced Voice Mail license (pre-Release 5.0)		
Personal Contacts	Advanced Voice Mail license (pre-Release 5.0)		
Networked Voice Mail, VPIMv2	One Voice Mail Networking license per ICP (pre-Release 5.0)		
IP Networking (IP trunk)	One IP Networking license needed per ICP to enable IP Trunk calls (pre-Release 5.0)		
Digital trunk (PRI, etc.)	One Network Link license per digital trunk span		
Compression (TDM/IP)	A Compression license is needed for TDM to IP or IP to TDM calls that require the use of the DSP compression. One Compression license can handle up to 8 calls		
Hospitality / PMS	Voice Mail PMS option		

Device	License	Number	Reference
X-NET over TDM	One license to enable X-Net networking over TDM links (pre-Release 5.0)		
Tenanting	Tenanting licenses (pre-Release 5.0)		
Application Licensing Requirements			
Unified Communicator Mobile (Mobile Extension)	Each Unified Communicator Mobile client license includes the necessary system licenses to support a Unified Communicator Mobile extension		See the Engineering Guidelines for the external application.
Quick Conference	• Licenses are available in a base kit of 8 and upgrade kits of 4 users each • Compression licenses (optional) • Audio recording licenses (optional)		
Your Assistant Softphone	3300 ICP requirements: • One IP User license per softphone Your Assistant Softphone requirements: • One Unified Communicator (UC) Advanced		
Emergency Response Advisor (Not Available in UK)	Main Terminal License includes use of one remote terminal. Additional remote terminal require licenses (up to 92 remote terminals)		
NuPoint Unified Messenging	3300 ICP requirements: • One IP User license per port to 3300 ICP NuPoint Unified Messenging requirements: • One Advanced UM license		
Mitel Applications Suite	License for base software package End-user Web Portal Licenses (5 included with base software) Licenses for applications Application user licenses		
Teleworker Solution	3300 ICP requirements: • One IP User License per phone Teleworker requirements: • One Teleworker license per remote phone • Licenses are available in a base kit of 5 and upgrade kits of 5, 25, 50, or 100		

Device	License	Number	Reference
Audio and Web Conferencing (AWC)	• For each Audio and Web Conferencing User License purchased, you can create 20 AWC user accounts. • The number of concurrent conference users, for all conferences, is equal to one user per one AWC User License. You can set up many AWC user accounts but for licensing purposes the product restricts the total number of conference participants. When determining licenses, consider that one IP User License is required on the Mitel 3300 for each Audio and Web Conferencing User License.		
Secure Recording Connector (SRC)	• SRC licenses are available in a base kit of 5 and upgrade kits of 1, 10, or 50 taps each. • You need a license quantity equal to the total number of concurrent recording ports you will use. (A "port" corresponds to the recording of a two-party or multi-party conversation.)		
Customer Interaction Solutions	3300 ICP Requirements: • One IP User License per port to 3300 ICP CCS Requirements: • One CSS license		
Speech Server	3300 ICP Requirements: • One IP User License per port to 3300 ICP Speech Server Requirements: • One Speech Server license		
Messaging Server	3300 ICP Requirements: • One IP User License per port to 3300 ICP Message Server Requirements: • Text to Speech Ports • Unified Messaging User Licenses • Integrated Messaging Desktop Licenses • ARS ports		

Software Compatibility

Record the versions of the system software and external applications. Check Mitel Online to ensure that the system software version is compatible with the version of the external application.

Table 13. Recording Software Versions

System/Application	Current Version	Required Version
System Platform		
3300 ICP system software (3300 ICP Controllers)		
System Name _____		
1. System Name_____		
2. System Name _____		
3. System Name _____		
MXe Server		
System Name _____		
1. System Name _____		
2. System Name _____		
3. System Name _____		
MCD for ISS		
System Name _____		
4. System Name _____		
5. System Name _____		
6. System Name _____		
vMCD		
System Name _____		
7. System Name _____		
8. System Name _____		
9. System Name _____		
MiCD		
System Name _____		
10. System Name _____		
11. System Name _____		
12. System Name _____		

System/Application	Current Version	Required Version
System Tools		
MCD Software Installer		
Mitel Integrated Configuration Wizard (for 3300 ICP)		
Mitel Integrated Configuration Wizard (for Mitel Applications Suite)		
Audio File Manager		
Voice Quality Manager (IP Phone Analyzer)		
ISDN Maintenance and Administration (IMAT)		
Conferencing, Collaboration, and Mobility		
5540 IP Console		
5550 IP Console		
Mitel Applications Suite		
NuPoint Unified Messenging (blade)		
Speech Auto Attendant		
Teleworker (blade)		
Unified Communicator Mobile (blade)		
Quick Conference (blade)		
Managed VPN (blade)		
Audio and Web Conferencing		
Secure Call Recorder		
Voice First Application		
Live Business Gateway		
Your Assistant		
Messaging Solutions		
NuPoint Unified Messenging		
Speech Server		
Messaging Gateway		
Customer Interaction Solutions (Contact Center Solutions)		
Contact Center Enterprise Edition		
Contact Center Business Edition		
Wireless Solutions		
Spectralink Wireless Solution		
IP-DECT Wireless Solution (GLOBAL)		
IP-DECT Wireless Solution (EMEA)		
Third-Party Equipment Solutions		
CITELlink Gateway		

System/Application	Current Version	Required Version
Management Applications		
Enterprise Manager		
Management Access Point (MAP)		
Call Recording		
Emergency Response Advisor (not available in UK)		

Customer Proposal

Table 14. Creating a Customer Proposal

Step	Reference
1. Consolidate customer requirements into a Statement of Work.	Download the Mitel Proposal Generator from Mitel Online. Use this tool to create a customer proposal.
2. Obtain customer sign-off on proposal,	
3. Consolidate customer requirements from approved proposal into a Statement of Work for customer to review	